

TITLE: SUSCEPTIBILITY TO IMIPENEM OF CLINICAL ISOLATES OF *Mycobacterium abscessus* complex: COMPARISON OF BROTH MICRODILUTION AND ETEST

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ABSTRACT:

Mycobacterium abscessus complex (MABC) is usually resistant to multiple antibiotics and the carbapenems have been proposed as therapeutic alternatives. This study aimed to evaluate the minimal inhibitory concentration (MIC) of imipenem determined by Etest with broth microdilution of MABC. A total of 30 MABC clinical isolates (23 *M. abscessus* subsp. *abscessus*, 6 *M. abscessus* subsp. *bolletii* and 1 *M. abscessus* subsp. *massiliense*) were tested by microdilution (reference method, according Clinical and Laboratory Standards Institute (CLSI M24-A2) and by Etest (bioMérieux). An inoculum of 1 McFarland on Mueller Hinton agar was used for the Etest method and the MIC was read after 72 h of incubation at 36°C. The MICs were interpreted according to the CLSI (susceptible ≤ 4 $\mu\text{g/mL}$, intermediate 8-16 $\mu\text{g/mL}$ and resistant ≥ 32 $\mu\text{g/mL}$). According to the reference method, 20% MABC isolates were susceptible to imipenem (4 *M. abscessus* subsp. *abscessus*, 1 *M. abscessus* subsp. *massiliense* and 1 *M. abscessus* subsp. *bolletii*), 56.7% MABC isolates presented intermediate resistance (12 *M. abscessus* subsp. *abscessus* and 5 *M. abscessus* subsp. *bolletii*) and 23.3% were fully resistant (all *M. abscessus* subsp. *abscessus*). The Etest presented categorical agreement with microdilution for 21 (70%) isolates. Nine isolates (all with Intermediate susceptibility by microdilution) presented minor errors: 4 isolates were classified as Susceptible by Etest; 5 isolates were classified as Resistant by Etest. Most MABC isolates exhibit intermediate or full resistance (80%) to imipenem. In summary the Etest in this evaluation did not perform as well as microdilution for susceptibility testing of MABC isolates due to minor errors. It has to be considered that most category changes of Intermediate were due to only one fold dilution of MIC.

Keywords: Broth microdilution, Etest, *Mycobacterium abscessus* complex

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